

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.



1

P6985

LIBRARY

OF THE

UNITED STATES  
DEPARTMENT OF AGRICULTURE

*Class* 1

*Book* P6985

8-1577

UNITED STATES DEPARTMENT OF AGRICULTURE,  
BUREAU OF PLANT INDUSTRY.

SOIL BACTERIOLOGY INVESTIGATIONS.

DIRECTIONS FOR USING INOCULATING MATERIAL.

Put one gallon of clean water (previously boiled and cooled) in a clean bucket or jar and add three heaping teaspoonfuls of granulated sugar; then add the tablet contained in the small envelope. Allow all to dissolve, stirring with a clean rod or spoon, if necessary.

Break off the seal from the bottle or break the bottle at the neck, being careful not to spill the liquid, and pour contents into the solution. Cover the bucket with a paper or moist cloth to protect from dust and set aside in a warm place for twenty-four hours. About 70° F. is the best temperature. Do not heat the solution or you will kill the bacteria. It should never be as warm as blood heat. The solution is now ready for use.

Either of the methods described below may be used, as may be most convenient. In case part of the solution remains after treating the seed this may be utilized by mixing with soil and spreading.

To Inoculate Seed:

Put the seed in a clean bucket (or other convenient container) and pour in a small quantity of the liquid culture. Mix thoroughly, adding liquid, if necessary, until all the seeds are moistened but not very wet. One gallon will moisten three to four bushels of seed, large seeds taking up less moisture than small seeds. Spread out the seeds in a shady place and sprinkle over them some dry, sifted soil or sand. Stir in this material with the seed. Two or three quarts of dry dust to each bushel of seed will render the seeds dry enough to plant within a few minutes after treatment. When dry, plant or sow just as you would untreated seed, allowing, however, for the added bulk due to the drying material used. Cover the treated seeds as soon as possible. If bad weather should prevent planting at once, the inoculated seed, carefully dried and properly stored, may be kept without deterioration for a week or more.

To Inoculate Soil:

Take enough dry soil so that the solution will merely moisten it. Mix thoroughly to moisten every particle, and mix this with four or five times as much—say half a wagonload. Spread this inoculated soil thinly and evenly over the prepared ground (about 400 pounds to the acre) exactly as if spreading fertilizer. The inoculated soil should be harrowed in immediately to avoid exposure to the sun. In garden patches the treated soil should be distributed in the open trenches with the seed and covered at once.

NOTE.—For a small quantity of seed the contents of this bottle may be used directly upon the seed. For quantities of seed not exceeding six to eight pounds the culture in the bottle may be diluted with a half pint of water (omitting the sugar and tablet) and used immediately, according to directions for treating seed or soil.

3 3 3 3 3 3  
3 3 3 3 3 3  
3 3 3 3 3 3  
3 3 3 3 3 3  
3 3 3 3 3 3

000000  
000000

## United States Department of Agriculture,

## BUREAU OF PLANT INDUSTRY,

Soil Bacteriology and Plant Nutrition Investigations.

## DIRECTIONS FOR USING INOCULATING MATERIAL.

This culture may be used, without diluting, immediately after opening the bottle. The contents of the bottle will moisten about one bushel of seed. If more liquid is needed to treat a larger quantity of seed, add water up to one quart, reckoning one-half pint to a bushel of seed, and use at once.

In order to aid the Department of Agriculture in compiling results from the use of cultures of the nodule-forming bacteria in different parts of the United States, it is requested that a small portion of the field be planted with uninoculated seed so that the exact effect of inoculation on your land can be determined. During the growing season the roots of both the inoculated and uninoculated plants should be examined in order to determine whether the bacteria have formed nodules. A blank for reporting the results of inoculation will be forwarded to you several months later.

Either of the methods described below may be used, as may be most convenient. In case part of the solution remains after treating the seed, this may be utilized by mixing with soil and spreading the inoculated soil over the field.

## TO INOCULATE SEED.

Put the seed in a clean bucket (or other convenient container) and pour in a small quantity of the liquid culture. Stir the seed and culture thoroughly, adding liquid until all the seed are moistened but not wet. One quart will moisten at least four bushels of seed, large seeds taking up less moisture than small seeds. Dry the seeds by spreading them out in a shady place, or by mixing with them some dry, sifted soil or sand. Two or three quarts of dry dust to each bushel of seed will render the seeds dry enough to plant within a few minutes after treatment. When dry, plant or sow just as you would untreated seed, allowing for the added bulk if drying material is used. Cover the treated seeds as soon as possible. If bad weather should prevent planting at once, the inoculated seed, carefully dried and properly stored, may be kept without deterioration about a week.

## TO INOCULATE SOIL.

Add the culture solution to enough dry soil so that every particle of the soil will be slightly moistened; mix this with four or five times as much—say, half a wagonload. Spread this inoculated soil thinly and evenly over the prepared ground (about 400 pounds to the acre) exactly as if spreading fertilizer. The inoculated soil should be harrowed in immediately to avoid exposure to the sun. In garden patches the treated soil should be distributed in the open trenches with the seed and covered at once.





